DETAILED ACTION

The information disclosure statement filing is sufficient and the references shall be considered. In regard to the amendments to the specification, the inclusion of the appropriate headings is recognized by the examiner the objections to the specification are hereby withdrawn. The claims, however, continue to be unpatentable over the prior art.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 1-9, 11-14 and 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Schrof et al. US 2003/0175506 (the US publications referred to hereinafter as Schrof '506) or Schrof et al. WO01/84544 (the WIPO publication analogous to Schrof '506, which is taken to disclose the same teachings as Schrof '506 is the English language equivalent thereof. The examiner is also in the process of awaiting a translation; however for brevity sake the English language equivilent is the only action cited despite the fact that both are taken to present the same teachings.) either in view of Ha et al. in US 2002/0032251.

Regarding claim 1, Schrof et al. teaches a method of making a laminate (abstract) comprising applying, to at least one substrate ('506: [0093]), a laminating adhesive ('506: [0011]) comprising a polymer comprising free-radically polymerized compounds ('506: [0026]), and bonding the at least one substrate to a transparent film ('506: [0095]) to form a laminate of the at least one substrate and the transparent film ('506: [0098]). The examiner recognizes the definition of a laminate to be a material constructed by uniting two or more layers of material together. The process of creating a laminate is recognized as laminating, which in common parlance refers to sandwiching something between layers and sealing them with heat and/or pressure, usually with an adhesive, so as such, the above mentioned adhesive taught by Schrof et al. is

considered to be a laminating adhesive. It is further recognized by the examiner that the invention disclosed by Schrof et al. teaches a UV-curable adhesive which can be used to coat a support ('506: [0095]; UV transparent film as a support) and bond said support to a substrate, creating what is by definition a laminate ('506: [0098]). The examiner takes the position that the term high gloss laminate is taken broadly without a point of reference from which to gauge said level of gloss as high. The examiner also notes that nothing is presented to indicate an additional feature causing said high gloss and as such since the prior art teaches the limitations of the claims such is also determined to possess the same properties (i.e. high gloss). Additionally, the inclusion of the phrase "via the laminating adhesive" is taught above by Schrof whereby the adhesive of Schrof is used to bond the substrate and the film. Still further it is noted that the laminate of Schrof can utilize supports (i.e. substrates) for adhesive coating, which include among others paper, card, polymer films and metal foils ([0069]) and as stated above the term "high gloss" is not limiting without a point of reference from which to gauge "high". Also, it is noted that a composite laminate merely requires the combination of two different layers (as is appropriate with the definition of the term composite) and it can be seen that Schrof appreciates the utilization of two supports sandwiching the adhesive ([0076]) and given the supports provided by Schrof there is a host of combinations, the majority of which, would entail bonding two different supports.

Schrof et al. fails to explicitly teach said adhesive also containing compounds B) comprising ethylenically unsaturated, free-radically polymerizable groups wherein the compounds have a weight-average molecular weight of less than 5000 g/mol.

Ha et al. teaches compounds B) comprising ethylenically unsaturated, free-radically polymerizable groups ([0018]) wherein the compounds have a weight-average molecular weight of less than 5000 g/mol ([0070]). It is commonly known to one of ordinary skill in the art and further stated in Ha et al. that the (meth)acrylate functional groups of the reactive diluents are ethylenically unsaturated, free-radically polymerizable groups ([0037]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Schrof et al. to include compounds B) comprising ethylenically unsaturated, free-radically polymerizable groups wherein the compounds have a weight-average molecular weight of less than 5000 g/mol in view of Ha et al. because such compounds are known to offer improved viscosity and adhesion ([0031]). Regarding claim 2, the method of claim 1 is taught as seen above. Schrof et al. further teaches that the polymer is composed of at least 40% by weight of (meth)acrylates ('506: [0028]; [0038]). Although not explicitly stated it would have clearly been obvious at the time of the invention for an ordinary skilled artisan to utilize the invention of Schrof to its full extent and given that Schrof presents using the polymer to bond supports whereby the supports can be a host of differing components (many of which read on those claimed by the applicant) it would have been within the purview of the ordinary skilled artisan to realize two different substrates can be utilized to yield what would be considered a composite laminate (given that nothing is presents in Schrof to exclude such a laminate). The mix and match and match utilization of the substrates disclosed

by Schrof to be used for their intended purpose (i.e. as a laminate) is taken to be an obvious matter to the ordinary skilled artisan.

Regarding claim 3, the method of claim 1 is taught as seen above. Schrof et al. further teaches the polymer is crosslinkable by irradiation with high-energy light ('506: [0012]).

Regarding claim 4, the method of claim 1 is taught as seen above. Schrof et al. further teaches that attached to the polymer is a photoinitiator ('506: [0012], [0015]).

Regarding claim 5, the method of claim 1, wherein the polymer A) has an average molar weight which is at least twice as high as the molar weight of B) is not explicitly taught in Schrof et al. or Ha et al.. The examiner takes official notice of the fact that although not explicitly stated it would be obvious to of ordinary skill in the art that the polymer made up C_{20} alkyl (meth)acrylates ('506: [0030]) with attached photoinitiators ('506: i.e. [0021]-[0024]; derivative formula) would more than double the molar weight of compounds B) disclosed by Ha et al ([0070]). Furthermore it is recognized by the examiner that only an upper threshold is designated by Ha et al. ([0070]) indicating it even more likely that said polymer A) exceeds the molar weight of compounds B) by at least a factor of two. It is finally noted by the examiner that although the arguments presented indicate such a value is evident in the prior art the examiner recognizes that the applicant gives no justification as to the benefit afforded by such a weight ratio and as such it can also be reasonably concluded that such a weight ratio imparts no functionality and therefore substantially similar results can be attained though other weight ratios.

Regarding claim 6, the method of claim 1 is taught as seen above. Schrof et al. further teaches that the polymer has a K value of from 10 to 90 as measured in a 1% tetrahydrofuran solution at 21.degree. C ('506: [0053]).

Regarding claim 7, the method of claim 1 is taught as seen above. Schrof et al. further teaches that the polymer is a solution polymer ('506: [0011]). It is recognized by the examiner that among the preferred embodiments taught by Schrof et al. is the adhesive coating composition (polymer) in the form of a solution.

Regarding claim 8, the method of claim 1 is taught as seen above. The compounds taught by Ha et al. as an obvious incorporation into the invention taught by Schrof et al. were shown by Ha et al. to have specific properties, which teach that the compounds B) at 21.degree. C. and 1 bar are liquid and have a viscosity of from 0.05 to 50 Pas ([0070]). It is recognized by the examiner that the units of the viscosities need to be converted (1000mPas = 1Pas) in order for their equivalence to be realized. Furthermore, it should be noted that it would have been obvious to one of ordinary skill in the art at the time the invention was made that the use of term diluent in Ha et al. is explicitly referencing a liquid as such is consistent with the termed definition. It is further recognized by the examiner that at the time the invention was made it was commonly known to one of ordinary skill in the art that the viscosity of a liquid is inversely proportional to temperature and varies very minimally in regards to the required 10 fold drop needed for the disclosed range in Ha et al. (0.5Pas) to fall out of the claimed range. The examiner recognizes that such a drop would not be feasible with even a large range of temperature change and even less so at a range as small as that

between the claimed 21.degrees.C. and the disclosed room temperature (25.degrees.C) in Ha et al.. It is further recognized by the examiner that said viscosity measurement taught by Ha et al. is silent as to any excess pressure present at the time of measurement and as such it is reasonably concluded that said measurement is conducted under normal conditions of atmospheric pressure (1 bar) as would be concluded by one of ordinary skill in the art.

Regarding claim 9, the method of claim 1 is taught as seen above. The compounds taught by Ha et al. in claim 1 as an obvious incorporation into the invention taught by Schrof et al. were taught by Ha et al. to have specific properties, which teach that the compounds B) comprise from 1 to 5 polymerizable groups per molecule ([0079], [0085]). It is recognized by the examiner that the reactive diluents disclosed by Ha et al. are equivalents to the compounds B) claimed by applicant in that they are shown to be ethylenically unsaturated, free-radically polymerizable groups wherein the compounds have a weight-average molecular weight Mw of less than 5000 g/mol. Furthermore, it is recognized by the examiner that the reference to the term “groups” ([0085]) is a specific reference to the functional groups on the acrylate functional diluent as is consistent with the terminology and inventive entity disclosed in Ha et al..

Regarding claim 11, the method of claim 1 is taught as seen above. The compounds taught by Ha et al. in claim 1 as an obvious incorporation into the invention taught by Schrof et al. were taught by Ha et al. to have specific properties, which teach that the compounds B) are (meth)acrylic esters of polyhydric, unalkoxylated or alkoxylated alcohols ([0079]). The examiner recognizes that the disclosed

ethoxyethoxy-ethyl acrylate in Ha et al. as one of the preferred monomers would satisfy as a (meth)acrylic ester.

Regarding claim 12, the method of claim 1 is taught as seen above. Schrof et al. fails to explicitly teach the method of claim 1, wherein the weight fraction of the compounds B) is from 5 to 70% by weight, based on the total weight of A)+B).

The compounds taught by Ha et al. as an obvious incorporation into the invention taught by Schrof et al. were shown by Ha et al. to have specific properties wherein having the weight fraction of the compounds B) is from 5 to 70% by weight, based on the total weight of A)+B) would have been obvious. Ha et al. teaches that the addition of the acrylate functional reactive diluents (compounds B)) can be adjusted in both types and amounts added to achieve optimal viscosity and adhesion as it pertains to the ultimate intended use of the product ([0031]). It is further taught by Ha et al. that the acrylate functional reactive diluents (compounds B)) are preferably added at an amount of 5 to 70% by weight ([0078]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Schrof et al. to include the weight fraction of the compounds B) as 5 to 70% by weight, based on the total weight of A)+B) in view of Ha et al. because it is was known that the acrylate functional reactive diluents can be added in any ratio and amount to aid in improving viscosity and adhesion ([0031]).

Regarding claim 13, the method of claim 1 is taught as seen above. Schrof et al. further teaches the laminating adhesive comprising from 0.0001 to 1 mol of a photoinitiator or photoinitiator group per 100 g of the total weight of polymer A) and

compounds B) ('506: [0013]). The examiner recognizes that the disclosed values are based solely upon the ratio of the photoinitiator to polymer A); however, it is noted that even if B) were to take up a majority of the laminating adhesive as an additive compound it would still allow the photoinitiator to fall within the disclosed range as would be commonly understood to one with ordinary skill in the art. As proof of concept the examiner recognizes that were B) to encompass 70% of the overall composition (maximum threshold disclosed by applicant) and there was 1 mol of photoinitiator per 100g of A) as discussed above than the overall amount of photoinitiator would still be at 0.3 mol per 100g of A) and B), well within the accepted range.

Regarding claim 14, the method of claim 1 is taught as seen above. Schrof et al. further teaches the laminating adhesive comprising less than 5 parts by weight of water or solvent, based on 100 parts by weight of the total weight of A) and B) ('506: [0060]).

Regarding claim 16, the method of claim 1 is taught as seen above. Schrof et al. further teaches that the transparent film carries print ('506: [0069]). It is recognized by the examiner that the films listed are further defined as being UV transparent ('506: [0095]).

Regarding claim 17, the method of claim 1 is taught as seen above. It is recognized by the examiner that the laminate produced by the method of claim 1 would have been obvious due to the nature of the inventions disclosed in Schrof et al. and Ha et al.. Schrof discloses a laminate produced by the method of claim 1, but fails to teach the laminate would further contain compounds B); however, such compounds were known in the art at the time the invention was made and shown to be an obvious

incorporation as discussed above in claim 1 rejection. It is therefore concluded that such a laminate would have been obvious and the method of producing that laminate would likewise have been obvious.

Regarding claim 18, the method of claim 1 is taught as seen above. Schrof et al. further teaches that the transparent film is transparent to UV light ('506: [0095]).

Regarding claim 19, the method of claim 1 is taught as seen above. The examiner recognizes that it is obvious that since both applicant and Schrof et al. teach the use of the same films ('506: [0068], [0069], [0091]) that both would possess the same properties (i.e. transparent to electron beams). Furthermore, it is recognized by the examiner that electron beams are merely another form of high-energy light and would perform substantially the same function as the UV induced crosslinking through UV transparent films disclosed by Schrof et al. above.

Regarding claim 20, the method of claim 1 is taught as seen above. Schrof et al. further teaches the method comprising irradiating the transparent film with high-energy light ('506: [0085]). It is recognized by the examiner that as discussed in claim 18 above, Schrof et al. utilizes the use of UV transparent film as supports for the laminating adhesive, which are meant to be irradiated with high-energy (i.e. UV) light in order to bring about crosslinking ('506: [0085]).

Regarding claim 21, the method of claim 1 is taught as seen above and further as identified above Ha teaches the compounds B) comprising ethylenically unsaturated, free-radically polymerizable groups ([0018]) wherein the compounds have a weight-average molecular weight of not more than about 550, which recognizably includes

numbers at least up to 550 and given the term about, reasonably above 550. The examiner recognizes that the claimed range of over 250 would have been obvious given the teaching of Ha, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller,* 105 USPQ 233).

Regarding claim 22, the laminate of Schrof is utilized as a data recording medium and therefore such can taken to be packaging material for packaging data (abstract).

Regarding claim 23, Schrof additionally teaches that the glass transition temperature of the polymer discussed above is most particularly between -40- +100^{o}C. The range is seen to encompass the slightly narrower claimed range, but clearly includes a large overlap although it is recognized that the claimed range is not explicitly stated (i.e. stated as exactly -55 to 0).

The examiner notes, however, that the courts have held such to be an obvious matter because it has been held that when ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). An optimization or further specification within the ranges disclosed in the prior art has been continually held to be an obvious matter to the ordinary skilled artisan and thus the ranges alone would not be sufficient to distinguish over the prior art.

5. Claim 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Schrof et al. US 2003/0175506 (hereinafter ‘506) or Schrof et al. WO01/84544

(hereinafter '544) either in view of Ha et al. in US 2002/0032251 and further in view of Higbie et al. US 5,110,889.

Regarding claim 10, the method of claim 1 is taught as seen above. The compounds B) taught by Ha et al. in claim 1 as an obvious incorporation into the invention taught by Schrof et al. were taught to have acrylate functionality as discussed above. Schrof et al. in view of Ha et al. fail to specifically teach the polymerizable groups of compounds B) as acryloyl or methacryloyl groups.

Higbie et al. teaches the process of acrylation being alternatively carried out by a procedure using acryloyl chloride in the process of generating radiation curable diluents (column 7, lines 66-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Schrof et al. in view of Ha et al. and further in view of Higbie et al. because the above mentioned acryloyls are known to be an equivalent to the acrylates used by Ha et al. as polymerizable groups. It is recognized by the examiner that the applicant has not provided sufficient evidence to suggest the contrary and as such it has been concluded that acrylate groups, which are known to also be ethylenically unsaturated and useful in polymerization, would perform substantially the same function.

Response to Arguments

1. Applicant's arguments filed May 30th, 2008 have been fully considered but they are not persuasive.

The applicant contends that Schrof is not relevant to the present invention because it is drawn to a data recording medium.

The examiner disagrees and notes that although Schrof is capable of additional features such as acting as a data recording medium it is still a polymer much like that of the instant claims and reads specifically on the instant claims through the incorporation of Ha. It is noted that Schrof provides that in addition to the data recording properties of the polymer composition it still functions with the typical expected properties such as one in which it promotes adhesion (i.e. bonds to objects and is commensurate with a laminating adhesive) (see [0005]). Also the examiner directs the applicant's attention to the specific disclosure of Schrof where it is provided that the polymer composition (as disclosed above) can of course be present as an adhesion promoting layer between two supports (i.e. functioning as a laminating adhesive; see [0076]). The differences that the applicant contends (for example that the present invention is not a data recording medium) is not commensurate with the scope of the claims since there is nothing presented to exclude such a product and the polymer of Schrof is clearly reading on the claimed invention.

The applicant contends that Schrof and the instant invention are different based upon the instant invention being used a high gloss or composite laminate suitable as a packaging material.

The examiner disagrees and first notes that packaging is not explicitly defined such as to exclude the invention of Schrof because clearly Schrof is presenting a laminate suitable as a packaging material because Schrof deals with the laminate being

capable of packaging data. As to the high gloss laminate as stated above nothing is presented in the claims to exclude the Schrof reference as a high gloss or composite laminate since there is no point of reference from which to gauge the gloss as high and Schrof clearly states the polymer (functioning as an adhesive) can be used to promote the adhesion between two supports ([0076]) whereby the supports can be a number of materials such as paper, card, metal foil or polymer film ([0069]).

The applicant contends that the present invention submits a polymer with component (A) having a Tg of -55 to 0.degrees.C and the invention of Schrof presents the same with a Tg of -60 to 200.degrees., which would not have been an obvious matter to arrive at applicant's Tg given the Tg of Schrof.

The examiner disagrees and sees the instant case as merely a case of optimizing the ranges of Schrof whereby it can clearly be seen that the range of Schrof encompasses the range of the instant claims. The examiner notes that in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). In an equally applicable court decision the examiner notes that generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

The applicant contends that Schrof and Ha are not properly combinable and that such would have adversely affected the information storage ability of Schrof.

Firstly it is reiterated that clearly upon combination of the two references the claimed invention is disclosed given that Ha adds the lacking component B to the polymer of Schrof. Secondly, the argument that Ha and Schrof are fundamentally different and not combinable is not persuasive since Schrof clearly presents the polymer as an adhesion promoting layer between two supports ([0076]) that is coated onto supports by a variety of different methods ([0065]) and it would have been clearly applicable to modify the polymer with known methods of improving the coatability and adhesiveness of the composition. As to the fact that Ha would have disrupted the information storage ability of Schrof there is no evidence to suggest that such would have been the result of the combination and such is merely an allegation by the applicant that would have no persuasiveness without proof thereof. Finally as to the motivation to combine the examiner it is the examiner's position that in establishing a case of obviousness motivation for combining portions of references does not have to be an expressed suggestion in the references or a convincing line of reasoning. Milliken Research v. Dan Rive, Inc., 222 USPQ (Fed. Cir. 1984), In re Sernaker, 217 USPQ 1 (Fed. Cir. 1983). Here, such suggestion or motivation to combine is provided by Ha whereby Ha provides that the acrylate functional reactive diluent (equating to applicant's component B) provides the known benefit of allowing one to improve the adhesiveness and viscosity (i.e. coatability) of an adhesive composition ([0031]). Therefore it is the examiner's view that the references are adequately suggestive of the claimed invention

and sufficient motivation exists to combine the references in the manner discussed in the rejection.

The applicant's contends that the specification (pages 7 and 8) provides different component B compounds than those disclosed by Ha.

The argument is not commensurate with the scope of the claims, Ha presents the claimed component B.

The applicant contends that Schrof and Ha would not have been combinable because Ha teaches the bonding of different surfaces in comparison to Schrof and Schrof is drawn primary to a data recording medium.

It is again reiterated as stated above that although Schrof is a data recording medium it also functions as an adhesive to bond two supporting surface which may be different (composite) or the same and given that no reference point of "high gloss" is defined the invention of Schrof is taken to be "high gloss" especially when comparing to products of low gloss. As to the fact that Ha presents the bonding of different substrates and is therefore not combinable, the argument is unpersuasive and the examiner continues to take the position that an ordinary skilled artisan presented with the teachings of Schrof would have appreciated that such functions as a coatable adhesive layer (as presented above and in addition to it functioning as a data recording layer) and would have been motivated to incorporate the component of Ha (equating to applicant's component B) because such was known to improve both the adhesion and viscosity (i.e. coatability) and clearly such are beneficial features that one would have sought to

improve upon when utilized Schrof for its intended purpose (i.e. a date recording medium functioning as an adhesive layer between two substrates).

The applicant cites preparatory methods of the instant invention and cites superior results of strength and adhesion among others.

The arguments are not commensurate with the scope of the claims and as such can not be a distinguishing feature. The examiner has appropriately presented a prima facie case of obviousness over the instant claims as seen above and the contention of superior results can not be used to distinguish therefrom without any basis in the claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL N. ORLANDO whose telephone number is (571)270-5038. The examiner can normally be reached on Monday-Thursday, 7:30am-4:30pm, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MO

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791